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Remarks:

Reconsideration of the application is respectfully requested.

Claims 1 - 3 are presently pending in the application. Claims 1 - 3 have been amended to even more clearly point out the claimed invention.

In item 7 of the above-identified Office Action, the specification was objected to on the basis that the title of the invention was allegedly not descriptive. Applicants' have amended the title of the invention, herein, in order to further prosecution of the application.

In item 3 of the Office Action, claims 1 - 3 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U. S. Patent No. 5,272,704 to Tong et al ("TONG") in view of U. S. Patent No. 5,596,712 to Tsuyama et al ("TSUYAMA").

Applicants respectfully traverse the above rejections.

More particularly, Applicants' claimed invention relates to a method and system using two processors, where, in response to a fault event, a user predetermines a fault hypothesis, which user determined fault hypotheses is automatically verified. To further emphasize this process, Applicants have amended claim 1 to recite, among other limitations:

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upon occurrence of a fault, determining, by a user of the data processing system, an existence of a fault hypothesis;

accessing, through the second processor for hypothesis processing, results of a calculation of the installation and process states and accessing a checklist of the knowledge-based models for automatically verifying the fault hypothesis determined to exist by the user in the determining step on a basis of conditions associated with checklist items in the checklist; [emphasis added by Applicants]

Similarly, Applicants' independent claim 2 has been amended to recite, among other limitations:

a data processing system processing knowledge-based models for the fault cause analysis and physical models of technical installation functions and processes which can be carried out by the technical installation, said data processing system containing:

. . . .

an input/output device connected to said second processor for hypothesis processing, said input/output device being used as an interface by the user to determine the existence of a fault hypothesis in response to the fault event; and

said second processor being configured to process and verify the fault hypothesis determined by the user. [emphasis added by Applicants]

The amendments to Applicants' claims are supported by the specification of the instant application. For example, that the user predetermines a fault hypothesis in response to fault event, is supported by the specification of the instant application, including the preamble of originally filed claim

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2, as well as, for example, page 5 of the instant application,  
lines 2 - 5, which state:

The method and the system are suitable for assisting  
in the search for fault causes when fault events occur  
in industrial installations. [emphasis added by  
Applicants]

See also, page 11 of the instant application, lines 18 - 26,  
which state:

FIG. 6 shows, by way of example, how the system  
presents a user with the fault hypothesis "power  
supply too high". A description of the fault  
hypothesis in this case explains the relationship  
between the fault and the possible cause. A  
localization process indicates the possible fault  
location; in the example, this is the reactor XY. The  
hypothesis is verified by processing a verification  
checklist. The tests "temperature measurement fault"  
and "leakage to the cooling casing" may be verified  
automatically by a physical model. A fault tree  
reference allows access to an associated fault tree  
for deeper diagnosis relating to the diagnosis  
criterion "incorrect operating instructions".

The above paragraph is describing the determination of an  
actual fault event (i.e., which is localized by a localization  
process and measured by tests) and verification of the user  
determined fault hypothesis by taking post-fault event  
measurements.

Further, the specification of the instant application makes it  
clear, that the user determines a fault hypothesis to be

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verified automatically by the system. See, for example, page 4 of the instant application, lines 14 - 19, which state:

A user of the data processing system determines an existence of a fault hypothesis. The second unit is used for accessing results of a calculation of the installation and process states and for accessing a checklist of the knowledge-based models for automatically verifying the fault hypothesis on a basis of conditions associated with checklist items in the checklist. [emphasis added by Applicants]

In support of the amended claims, see also, page 8 of the instant application, lines 15 - 20, which state:

The input/output device 10 contains a model browser 11, by which a fault analyst can process knowledge-based models 33 which are based on fault trees and are referred to as root cause analysis (RCA) models. In particular, this allows a fault hypothesis to be predetermined, which can be verified automatically by the system. [emphasis added by Applicants]

The amended claims are even further supported by, for example, page 9, line 11 - page 10, line 4, which states:

FIG. 2 shows the method for automatic processing of fault hypotheses with the aid of the physical models that are illustrated in general form in FIG. 1 and in the form of an example in FIG. 3. The fault analyst first navigates to a fault hypothesis in order to start the method. In method step 100, the hypothesis processor 22 loads the calculation results 32 which are required for verification of the hypothesis. In subsequent step 200, the hypothesis processor 22 also loads the checklist for the relevant hypothesis from the knowledge-based models 33. FIG. 6 shows one example of a checklist such as this. In step 300, the hypothesis processor 22 compares the calculation results with the checklist items from the checklist. The checklist items for which models are stored are in this case evaluated automatically. Each checklist item

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contains a condition for verification of the hypothesis. In step 400, the hypothesis processor 22 identifies whether the checklist item does or does not satisfy the condition. As an example, FIG. 7 shows how a checklist is output after processing. [emphasis added by Applicants]

As such, the specification of the instant application supports, among other things, in order to identify a fault event that has occurred, a user determines a fault hypothesis (i.e., "The fault analyst first navigates to a fault hypothesis . . .") that can be verified automatically by the system.

The TONG and TSUYAMA references, cited in combination in the Office Action against Applicants claims, both fail to teach or suggest, among other limitations of Applicants' claims, automatic verification, by a data processing system, of a fault hypothesis determined by a user in response to a fault event.

More particularly, the TONG reference relates to a method and apparatus for generation of multi-branched diagnostic trees, which is generally practiced on model-based diagnostic systems. Among other limitations of Applicants' claims, TONG does not teach or suggest automatic verification, by a data processing system, of a fault hypothesis determined by a user in response to a fault event.

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Further, the TSUYAMA reference discloses a method and system for diagnosis and analysis of products troubles. In TSUYAMA, a fault tree is created and stored which represents causal relations between faults and causes thereof, based on information of past faults and information concerning the structure and characteristics of the product. Then, in TSUYAMA, new information about product faults are input to the computer. Then, in TSUYAMA, the fault tree is searched determine the cause of the fault and information is generated and outputted concerning an adjustment or repair of the product suffering from the fault based on the determined cause of the fault as well as the information concerning the structure and the characteristics of the product. Additionally, in TSUYAMA, information concerning the timing of the occurrence of the fault, symptoms appearing in the fault, the cause of the fault and the adjustment and repair data are supplied to a host computer through a data collecting station to thereby construct a database for the fault information.

As with TONG, among other limitations of Applicants' claims, TSUYAMA does not teach or suggest automatic verification, by a data processing system, of a fault hypothesis determined by a user in response to a fault event. Rather, col. 2 of TSUYAMA, lines 35 - 40, are cited on page 3 of the Office Action as

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allegedly disclosing **user** determination of a **fault hypothesis** in TSUYAMA. Applicants respectfully disagree. More particularly, col. 2 of TSUYAMA, lines 35 - 40, state:

generating by the computer the information concerning adjustment or repair of the product suffering from the fault on the basis of the cause of the fault as well as the information concerning the structure and the characteristics of the product and outputting the information concerning the adjustment or the repair; [emphasis added by Applicants]

The above paragraph of TSUYAMA, cited in the Office Action, does not teach or suggest determination, by a user, of a fault hypothesis in response to a fault event, as is currently required by Applicants' claims. Nor does TSUYAMA teach or suggest, among other limitations of Applicants' claims, that such a fault hypothesis (i.e., determined by a user in response to a fault event) is automatically verified by the system, as further required by Applicants' claims. Although TSUYAMA discloses statistically analyzing data, TSUYAMA does disclose using the system resources to automatically verify the fault hypothesis determined by a user in response to a fault event.

As such, Applicants' claims are believed to be patentable over the TONG and TSUYAMA references, taken alone or in combination.

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It is accordingly believed that none of the references, whether taken alone or in any combination, teach or suggest the features of claims 1 and 2. Claims 1 and 2 are, therefore, believed to be patentable over the art. The dependent claim is believed to be patentable as well because it is dependent on claim 2.

In view of the foregoing, reconsideration and allowance of claims 1 - 3 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made.

Please charge any fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.



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Respectfully submitted,



For Applicants

Kerry P. Sisselman  
Reg. No. 37,237

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Lerner Greenberg Steiner LLP  
Post Office Box 2480  
Hollywood, FL 33022-2480  
Tel: (954) 925-1100  
Fax: (954) 925-1101